MISCELLANEOUS NOTES

1. GROUP NUMBER AND COMPOSITION OF HANUMAN LANGUR (*PRESBYTIS ENTELLUS*) IN JAIPUR, INDIA

(*With a text-figure*)

Introduction

Langurs and rhesus are commonly seen in most of the north Indian cities. There are very few long term, behavioural and demographic studies conducted systematically on any one population (Mohnot 1968, 1971, 1974, 1975, 1978, 1980; Mohnot *et al.* 1981) or on different populations (Southwick 1960, 1980; Southwick *et al.* 1961, 1980; Southwick and Siddiqui 1966, 1968, 1970, 1977), and even fewer studies on urban monkeys (Singh 1966).

The present investigation, therefore, was taken up for two main reasons (i) to add some basic information about primate population, and (ii) to collect baseline data for future comparative behavioural, demographic studies, particularly of langurs occupying different habitats.

Methods

Jaipur, our research site, is the capital city of the state of Rajasthan in India. It is situated amidst the Aravali hill ranges at an altitude of 430 m above mean sea level, and lies on latitude 26°55′N, and longitude 75°50′E. The region is semi-arid and moderately vegetated, with 600 mm average annual rain fall. Maximum temperature is 46°C during June and minimum is 6°C in January. Humidity is 80% during monsoon months.

Jaipur city has two parts, old city and outskirts (Fig. 1). The population survey of langurs was started in May 1985 with the collection of verbal information from the local people, roadside shop keepers and from areas which are known to have monkeys. For this, a road survey was launched using scooter and jeep during early morning hours once in a week covering 20 km/trip at various routes. Repeated travelling and verbal information helped in locating groups. Location of each group was marked on the map and the local people were interviewed to know more about that group. After this, each group was visited for 5-8 consecutive days for its identification, group type, and to count the total number of individuals in different age-sex classes.

The counting was done either (i) early morning when monkeys are most clearly seen leaving their roosting site in almost single file or (ii) during afternoons and evenings by feeding and attracting monkeys with peanuts and gram seeds.

On an average, individuals of each group were counted for 10-20 times. The individuals of each group have been classified into age-sex classes *viz.*: adult male, adult female, sub-adult male, sub-adult female, juvenile, infant I and infant II.

Results

During the past twelve months, 25 groups of langurs have been located, identified, followed for their group identification and other details of the group. The surveyed area included

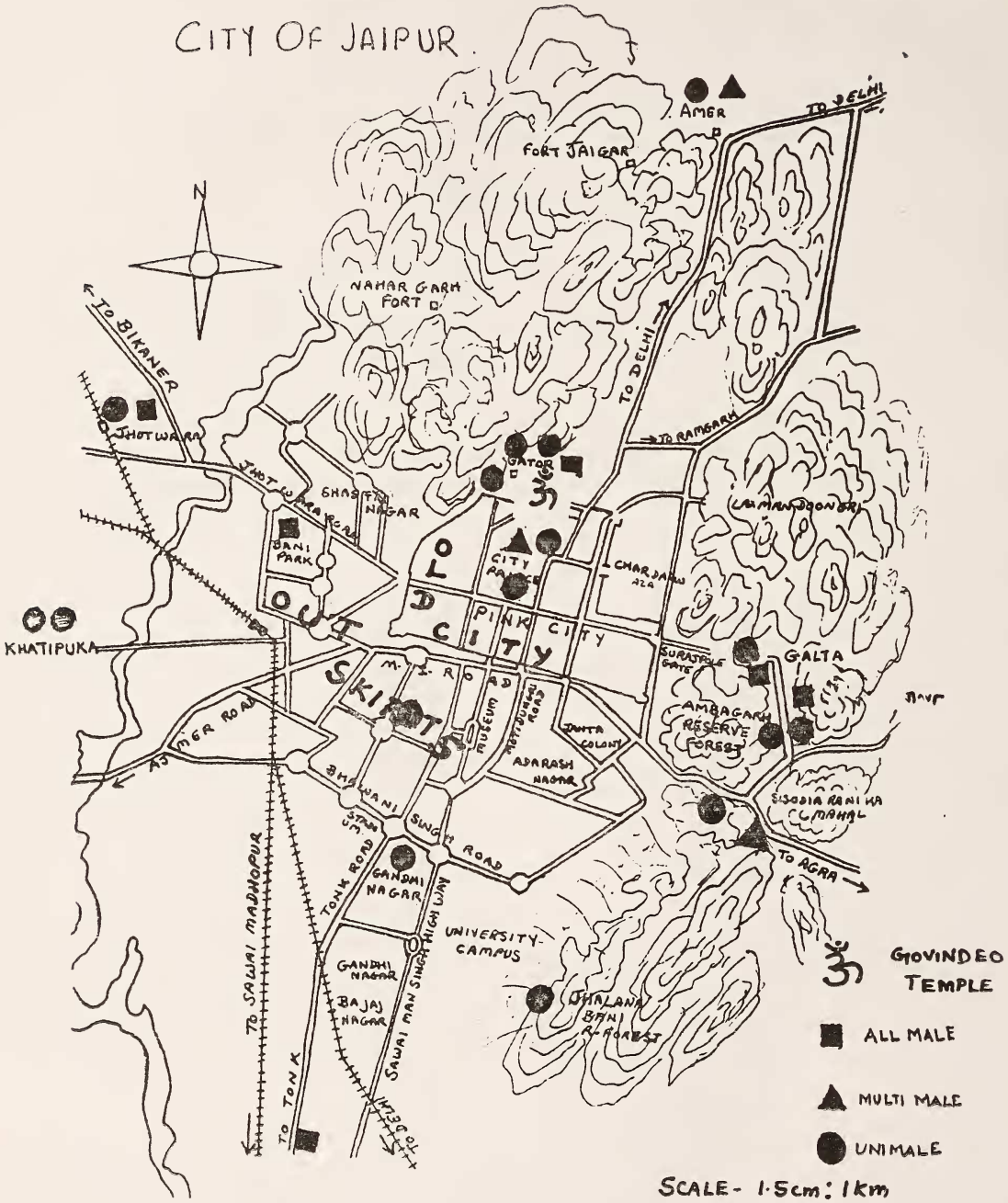

Fig. 1. Jaipur, old city and outskirts.

old city (less number of trees, markets of grains, vegetables, fruits, jaggery, presence of temples, palaces, gardens and residences) and outskirts (more trees; generally offices and residences).

Out of 25 groups only six langur groups are found in old city, otherwise, they seem to prefer the outskirts of the city. The six groups in the old city rely mainly on provisioning, which they get maximum at a temple "Govindeoji" (Fig. 1). Among the six, 3 groups live in this area, whereas, 12 other groups have occupied the outskirts of the city. These 12 groups are seldom fed by human beings, on the contrary, they are considered as pests. These groups exploit a variety of plants and trees they even raid kitchen gardens. The seven remaining groups inhabit Galta area where there is heavy provisioning but they also have the chance to feed upon many plant species a few of them are mentioned in Table 1.

Out of a total of 25 there are 16 unimale bisexual groups, 6 all male groups and 3 multimale groups. There is a great variation in the group size of unimale groups; the smallest

TABLE 1

SOME TREES EXPLOITED BY LANGURS IN JAIPUR

Species	Leaf buds	Young leaves	Mature leaves	Peteole	Bark	Flowers	Fruits
1. *Holoptelea integrifolia*	*	*	*	*			*
2. *Ficus bengalensis*		*	*	*			*
3. *Ficus religiosa*		*	*	*			*
4. *Ficus racemosa*		*	*				
5. *Azadirachta indica*		*	*				
6. *Dalbergia sissoo*		*	*			*	
7. *Tamarindus indica*		*	*				
8. *Pithecolobium dulce*		*	*				
9. *Anogeissus pendula*		*	*	*			
10. *Morus alba*		*	*				
11. *Prosopis juliflora*		*	*				*
12. *Prosopis cineraria*		*	*				
13. *Boswellia serrata*		*	*			*	
14. *Albizzia lebbek*		*	*				
15. *Delonix regia*		*	*				
16. *Dichrostachys cinerea*		*	*				
17. *Acacia totilis*		*	*				
18. *Acacia nilotica*		*	*				
19. *Bauhinia variegata*						*	*
20. *Cardia gharafi*		*	*				
21. *Mitragyna parvifolia*							*
22. *Manilkara hexandra*		*	*				
23. *Tecoma stans*		*	*				
24. *Hibiscus rosa-sinensis*		*	*				
25. *Psidium guajava*					*		

* Part exploited.

TABLE 2

GROUP NUMBER, COMPOSITION OF UNIMALE GROUPS

Sr. No.	Place	Area	Vegetation	Degree of provisioning*	Group No.	Group Type	Adult Male	Adult Female	Infant I	Infant II	Sub-Adult Male	Sub-Adult Female	Juve-nile	Total
1.	Govindeoji Temple	Temple	Moderate	Moderate	GUM I	Unimale	1	22	1	5	–	6	7	42
2.	Jantar-Mantar	Tourist spot	Moderate	Little	JUM I	„	1	18	3	4	–	5	5	36
3.	Amber Fort	Tourist spot	Moderate	Heavy	AUM I	„	1	34	1	16	–	5	23	80
4.	Gaithore	Tourist spot	Moderate	Moderate	GAUM I	„	1	22	4	7	–	2	6	42
5.	Gaithore	Tourist spot	Moderate	Little	GAUM II	„	1	18	5	–	–	3	4	31
6.	Gaithore	Tourist spot	Moderate	Little	GAUM III	„	1	11	–	9	–	–	6	27
7.	Jhalana	Stone Quarry	Little	Very little	JHUM I	„	1	13	–	–	–	3	4	21
8.	Galta	Holy place tourist spot	Moderate	Heavy	G-III	„	1	49	14	13	–	7	34	118
9.	Galta	„	Moderate	Heavy	G-IV	„	1	48	15	18	–	6	14	102
10.	Galta	„	Moderate	Heavy	G-V	„	1	35	12	5	–	3	20	76
11.	Bapu Nagar	Residential	Little	Very little	BUM I	„	1	12	4	–	–	1	2	20
12.	'C'-Scheme	Residential	Moderate	Very little	'C' UM I	„	1	20	2	9	–	–	4	36
13.	Jhotwara	Residential	Little	Very little	JWUM I	„	1	10	2	2	–	2	2	19
14.	Khatipura	Temple, Forest, Nursery	Moderate	Heavy	KUM I	„	1	53	13	28	–	2	14	111
15.	Khatipura	Picnic place, Forest, Nursery	Moderate	Moderate	KUM I	„	1	24	8	11	–	1	9	54
16.	Vidhyadhar Bagh	Tourist spot	Moderate	Moderate	VUM I	„	1	27	10	3	–	3	11	55
														Total: 870
														Average 54.4

* Degree of provisioning: Heavy = Every day and entire day; Moderate = every day at fixed hours; Little = Once every day; Very little = Once in a week or almost nil.

TABLE 3

GROUP NUMBER, COMPOSITION, SEX RATIO OF MULTIMALE AND ALL MALE GROUPS OF JAIPUR

Sr. No.	Place	Area	Vegetation	Degree of provisioning*	Group No.	Group Type	Male Adult	Female Adult	Infant I	Infant II	Sub-Adult Male	Sub-Adult Female	Juvenile	Total	Sex ratio
	MULTIMALE														
1.	Govindeoji Temple	Temple	Moderate	Heavy	GMM II	Multi-male	5	16	–	5	8	4	7	45	1:1.53
2.	Amber Fort	Tourist spot	Moderate	Heavy	AMM II	,,	4	13	1	3	2	2	1	26	1:2.5
3.	Sisodia Garden	Gardens	Moderate	Heavy	SMM I	,,	2	22	–	7	5	1	12	49	1:3.14
													Total:	120	Average 40.0
	ALLMALE														
1.	Gaithore	Tourist spot	Moderate	Little	GAMM IV	All-male	5	–	–	–	28	–	9	42	
2.	Jhotwara	Residential	Little	Little	JWAM II	,,	4	–	–	–	15	–	3	22	
3.	Bani Park	Residential	Little	Little	BPAM I	,,	8	–	–	–	10	–	5	23	
4.	Durgapura	Residential	Little	Little	DAM I	,,	4	–	–	–	–	–	–	4	
5.	Galta	Holy place	Moderate	Heavy	G I	,,	8	–	–	–	23	–	27	58	
6.	Galta	Holy place	Moderate	Heavy	G II	,,	3	–	–	–	–	–	–	3	
													Total:	152	Average 25.3

* As mentioned in table 2.

unimale bisexual group has only 19 individuals which lives in the residential area of the outskirts and the biggest group has 118 individuals and is found at Galta (Table 2).

On an average unimale groups are bigger than multimale and all male groups. The average number of individuals in unimale group is 54.4, whereas, multimale groups have an average of 40.0 individuals in each group, and all male has 25.3 individuals per group (Table 3).

The number of groups and individuals noted so far form a part of total population of langurs of Jaipur. There are still 5-7 or more groups to be studied.

Discussion

In the city of Jaipur 25 groups of langurs were located and observed in one year after 800 km. long road surveys (repeated survey), and during 550 contact hours. All three kinds of social groups, unimale, multimale, all male are found in this region. The majority of the groups were unimale bisexual. The groups were generally smaller in residential areas (Group JWUM I) as compared to groups at temples (Govindeoji and Galta; Table 2).

It has been noted during the present investigation that very few groups of langurs are found in the old city, as they prefer the outskirts of the city. One reason could be to avoid rhesus. The old city is dominated by rhesus (Mathur and Lobo; Wolfe and Mathur — in press) and the other reason could be their folivorous nature. There are very few trees in the old city (except in temples) as compared to the outskirts and Galta.

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A comparison between the size ot unimale groups indicate a relationship between group size and amount of provisioning (Table 4).

Table 4

Group size in relation to the provisioning of food

Sr. No.	Degree of provisioning	Group size (no. of individuals)
1.	Heavy	118, 102, 80, 111, 76
2.	Moderate	42, 42, 55, 54
3.	Little	31, 27, 36
4.	Very little or almost nil	19, 36, 20, 21

Wherever groups have heavy provisioning they have a bigger group size as compared to groups occupying areas where there is little provisioning or almost nil. At temples not only feeding is high but the animals also enjoy greater protection in comparison to residential areas — where monkeys are treated as pests and are chased away. Galta forms a specially favourable place for monkeys. It is a holy place, it is surrounded by low altitude hills. The area supports a variety of plant species on many of which langurs feed. Alongwith this there is heavy provisioning during certain days in a week. The present investigation is a preliminary report, and, further information is being collected for evaluating our data statistically.

Acknowledgements

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2. OCCURRENCE OF THE BICOLOURED LEAF-NOSED BAT (*HIPPOSIDEROS FULVUS*) IN RAJASTHAN

On 29th November 1985, while observing Pythons in Keoladeo National Park, Bharatpur, I saw some microchiropterans moving inside one of the python holes. Later, the bat was collected and identified as bicoloured leaf-nosed bat (*Hipposideros fulvus*).

The upper part of the specimen had reddish brown hair with white base and the under part was more or less whitish. It had large pinna and tail which measured about 22 mm and 29 mm respectively.

Bicoloured leaf-nosed bat prefers porcupine